

Appl. No. 09/319,688  
Amdt. dated November 26, 2003  
Reply to Office Action of March 27, 2002

PATENT

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

Claims 1-11 (Withdrawn)

1           12.   (Original) A process for producing a fuel electrode of a solid oxide fuel  
2 cell, each cell comprising a solid electrolyte layer, a fuel electrode disposed on one surface of the  
3 solid electrolyte layer, and an air electrode disposed on an opposite surface, by alternatively  
4 laminating a plurality of cells, adjacent cells being electrically connected to each other, and a  
5 plurality of separators for distributing fuel gas to the fuel electrode of each cell and oxidizing gas  
6 to the air electrode, comprising the steps of: adding a solution of a metallo-organic compound of  
7 yttrium (Y) and a solution of a metallo-organic transition-metal compound to a solution of a  
8 metallo-organic compound of zirconium (Zr) to prepare a mixed solution of metallo-organic  
9 compounds of Zr-Y-transition metal; mixing NiO powder and cerium oxide powder containing a  
10 divalent or trivalent metal oxide dissolved therein to the mixed solution of the metallo-organic  
11 compounds to prepare a slurry; and successively subjecting the slurry to hydrolysis,  
12 polycondensation, pyrolysis, annealing and reduction to obtain a cermet comprising yttria-  
13 stabilized zirconia (YSZ) containing a transition metal dissolved therein, nickel (Ni) and cerium  
14 oxide containing a divalent or trivalent metal dissolved therein.

1           13.   (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said transition metal is cerium (Ce).

1           14.   (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said transition metal is titanium (Ti) or praseodymium  
3 (Pr).

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1                   15.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said metallo-organic compound is a metallic aliphatic  
3 acid salt.

1                   16.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said metallo-organic compound is a metallic acetyl  
3 acetate complex.

1                   17.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 15 wherein said metallic aliphatic acid salt is a metallic octylate.

1                   18.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said fuel electrode is formed on a solid electrolyte by a  
3 screen printing process.

1                   19.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein a volume fraction of the cerium oxide containing the  
3 divalent or trivalent metal dissolved therein in said cermet is in the range of 1% to 70%.

1                   20.     (Previously amended) The process for producing the fuel electrode of the  
2 solid oxide fuel cell according to claim 12 wherein a concentration of Ni in said cermet is in the  
3 range of 20% to 95% as a volume fraction.

1                   21.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein a concentration of the transition metal in YSZ containing  
3 said transition metal dissolved therein is in the range of 1 mol% to 30 mol%.

1                   22. (Previously amended) The process for producing the fuel electrode of the  
2 solid oxide fuel cell according to claim 12 wherein a concentration of YSZ containing the  
3 transition metal dissolved therein in said cermet is in the range of 1% to 50% as a volume  
4 fraction.

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1                   23.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said divalent or trivalent metal oxide is one or a  
3 combination of plural ones selected from the group consisting of BeO, MgO, CaO, SrO, BaO,  
4  $\text{Sm}_2\text{O}_3$ ,  $\text{Y}_2\text{O}_3$ ,  $\text{La}_2\text{O}_3$ ,  $\text{Gd}_2\text{O}_3$ ,  $\text{Sc}_2\text{O}_3$ ,  $\text{Pr}_2\text{O}_3$ ,  $\text{Nd}_2\text{O}_3$ ,  $\text{Eu}_2\text{O}_3$ ,  $\text{Yb}_2\text{O}_3$ ,  $\text{Dy}_2\text{O}_3$ , and  $\text{Ho}_2\text{O}_3$ .

1                   24.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said cermet has a structure in which surfaces of Ni  
3 particles and surfaces of cerium oxide particles containing the divalent or trivalent metal  
4 dissolved therein are covered with YSZ containing said transition metal dissolved therein in a  
5 form of thin films or fine particles.

1                   25.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein said hydrolysis is performed using moisture in air.

1                   26.     (Original) The process for producing the fuel electrode of the solid oxide  
2 fuel cell according to claim 12 wherein as materials of said cermet, cerium oxide powder  
3 containing the divalent or trivalent metal dissolved therein, Ni powder and a metallic octylate  
4 solution of Ce, Y and Zr are used, and YSZ fine particles containing the transition metal  
5 dissolved therein are uniformly dispersed between the cerium oxide particles containing the  
6 divalent or trivalent metal dissolved therein and the Ni particles.

1                   27.     (Original) The process for producing the fuel electrode of the solid fuel  
2 cell according to claim 26 wherein an average particle diameter of said Ni particles is 1  $\mu\text{m}$  or  
3 more, the average particle diameter of said cerium oxide particles containing the divalent or  
4 trivalent metal dissolved therein is 1  $\mu\text{m}$  or more, and the average particle diameter of said YSZ  
5 particles containing the transition metal dissolved therein is 1  $\mu\text{m}$  or less.

Claims 28-33 (Withdrawn)